3D Equilibrium Reconstruction in Action: V3FIT[1] J.D. HANSON, G.J. HARTWELL, S.F. KNOWLTON, B.A. STEVENSON, Auburn University, S.P. HIRSHMAN, A.C. SONTAG, Oak Ridge National Laboratory, J.C. SCHMITT, University of Wisconsin, D. TERRANOVA, Consorzio RFX — The 3D equilibrium reconstruction code V3FIT [1] is in routine use on stellarator experiments (CTH, HSX). It is in preliminary use on LHD and the Reversed Field Pinch RFX (Padova). Recent developments to the code include the ability to reconstruct using fixed boundary equilibria, addition of a mechanism for using compensated diamagnetic loops as signals, an improved mechanism for using soft x-rays as signals, an improved specification of limiters, and the ability to apply arbitrary shifts and rotations to external coils. The coordination between V3FIT and the underlying VMEC2000 [2] code (the 3D equilibrium code which V3FIT uses) has been improved, leading to more robust reconstructions. Results from various machines along with plans for future improvements in the code will be presented.

[1] J. D. Hanson, S. P Hirshman, S. F. Knowlton, L. L. Lao, E. A. Lazarus, and J. M. Shields, Nucl. Fusion **49**, 075031 (2009).
[2] S. P. Hirshman and J. C. Whitson, Phys. Fluids **26**, 3553 (1983).

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